Copies of all claims both showing amendments, and In plain text form, are attached.

Remarks

Claims 2-42 are in the application. Reconsideration and reexamination are respectfully requested.

1. Rejections under 35 U.S.C.102 and 103

Claims 20-41 are rejected under 35 U.S.C. 103(a) over the reference art of Smith in consideration of the reference art of Technicon and the reference art of Schneider.

Claims 20-41 are also rejected under 35 U.S.C. 102(e) in consideration of the reference art of Korobkin.

2. .Applicant's summary argument

Applicant will hereinafter argue that

(1) Applicant's invention is directed to the production of three-dimensional composition and display of saleable objects in situ in viewer-selected scenes for purposes of promotion and procurement INTERACTIVELY UPON A NETWORK, and NOT to generalized production of graphic images, and IS so claimed;

(2) Applicant's invention particularly teaches, and claims, BOTH (A) where graphic images are generated, as requires – especially when the images are photorealistic, -- MORE computational "horsepower" than that which a user may commonly prudently be possessed, AND (2) how expensive, detailed, 3D graphic models of depicted in their environment of may be used interactively upon a communications network (e.g. the Internet) WITHOUT risk that these valuable 3D models should be lost to parties that might use them to reverse engineer, and even competitively manufacture the goods so modeled;

(3) The predecessor, parent, application to the present application was allowed and did issue as patent No. 7,062,722 OVER the same reference art of Smith and Technicon now cited against the patentability of pending claims in the present application; and

(4) All reference art cited by the Examiner neither teaches nor suggests of EITHER of these claimed aspects of Applicant's invention, (A) the art of Smith in consideration of the art of Technicon at best suggesting that modeling might be done at and in one computer upon a network from symbol libraries maintained at another computer upon the same network, while (B) the art of Korobkin teaches away from maintain central (and impliedly confidential) such (valuable, proprietary) 3D models used in image generation as is specifically taught and claimed by Applicant.

Applicant derives no advantage in the Examiner's consideration of the patentability of his claims as are now presented by criticizing the prior art, and Applicant is not supposed to do so, and for these reasons Applicant eschews to do so. However, the Examiner MAY wish to consider that the prior art MAY simply be showing how to render an image of relatively arbitrary form from and by operations distributed upon a network. The prior

art MAY NOT be very sophisticated in determining when, where and how images of various quality should generally be rendered upon a distributed computer network, particularly in order that multiple purposes – both (1) easy image manipulation to place an object into a scene, and (2) quality image rendering to produce a final photorealistic image-- should be simultaneously served.

First, the user should be easily able to place a product in a real-world space by straightforward manipulations that, Applicant teaches, should be realized **at a User's, or client's, computer**. Second, and next, the quality, photorealistic, image should then be centrally rendered upon a powerful **server computer**. Third, and finally, quality image rendering uses large, expensive and (generally) proprietary 3D models, and these models should NOT be or become available to the User in order to avoid misappropriation and/or misuse.

3. First skippable section; Applicant's previous arguments

Applicant's predecessor Preliminary Amendment was long, the Examiner's Office Action is long, and this Amendment is long. The Examiner may therefore feel that he understands Applicant's invention quire well enough, and does not need any recapitulation of Applicant's arguments of patentability previously made. In that case the Examiner may immediately skip to the following section 4.

However, if the Examiner wishes to review matters to date, Applicant argued the patentable distinction of his invention in his Second Preliminary Amendment. Applicant pointed out that he clearly claimed:

> "(4) "producing or selecting at a first computer upon digital communications network,,,; transmitting from the first computer upon the digital communications

network....; receiving at another computer upon the digital communications network...." (claim 20)

"or, alternatively, and by way of further example,

"(5) "rendering at a first computer, communicative upon a digital communications network,,,;communicating from the first computer upon the digital communications network... to a second computer...; [and] rendering at the second computer". (Claim 23)

"Still other independent claims 32, 33, and 37-40 claim likewise, to wit: rendering an image by information interchange between BOTH a first, and a second, computer that are communicative upon a digital communications network.

"The reference patent of Smith neither teaches nor suggests a communications network. In fact Smith teaches a graphical user interface (GUI) while Applicant teaches a NETWORKED method and system of image rendering. In Smith all image generation -- "rendering" if done for such 3D images as Smith does NOT teach but DOES suggest - is done in a SINGLE computer. This deficiency of Smith to teach or suggest NETWORKED image rendering is not overcome by any of the art of reference in any combination.

For example, and as the Examiner points out, his rejection of claims 20-41 is under 35 U.S.C. 103... [over] the"reference art patent no. [6.052,669] of Smith, et al., in view of the prior art paper of Technicon Inc. [hereinafter "Technicon"] .

> "The Technicon...reference.. appear[s] to describe what is commonly referred to as a Web3D system, where small models are downloaded to the client and rendered in real-time on the client. This is very, very different from the image rendering method and system claimed by Applicant where image rendering is done on a server, or second, computer...

Applicant now proceeds to go over these points again, now in specific detail

4. Second skippable section; Applicant's invention

As stated, each of Applicant's predecessor Preliminary Amendment, the Examiner's Office Action, and this Amendment are long. The Examiner may feel that he understands Applicant's invention quire well enough, and does not need any recapitulation of the salient points thereof. In that case the Examiner may immediately skip to the following section 5.

For edification of the Examiner, the purpose of Applicant's present, related, C-I-P application is simply to extend the concepts taught in the first application. Two key concepts are added. The first is that the scene need not be communicated from the client to the server in 2D (plan view) form, and then translated to 3D at the server using object based-rules (chairs sit on the floor). Instead, small (light, i.e. low polygon count) "proxy" or "stand-in" models and textures can be placed in a 3D scene on the client and rendered in real time for the purpose of specifying the scene, and previewing the final rendering. Then, this information is transmitted to the server, where the big high-res models and textures are substituted, and a high-res 2D or 3D image is rendered entirely from 3D elements residing on the server, and the image is returned to the client for viewing.

In contrast, Web3D applications such are taught in the Tecnicon reference render a final image on the client for display to the user -- not for the purpose of specifying a scene to a ray-tracing rendering system on a remote server! Web3D systems download small models from the server, for rendering on the client. Applicant teaches that the small models may be resident on the client at the start of the session. Applicant's presently-presented claims may thus be seen to focus on two concepts WITHIN APPLICANT'S (ALREADY PATENTED) BROADER SCHEME OF NETWORK-BASED IMAGE RENDERING: (1) the use of proxy or stand-in models on the client, and (2) the concept of quickly rendering the stand-ins on the client for the purpose of specifying the scene to the server, and then previewing the rendering on the client before a final server-rendering request is made. .

5 Third skippable section; Applicant's existing patent

The Examiner may feel that he understands Applicant's existing patent based on the parent predecessor application to this C-I-P application, and does not need any recapitulation of the salient points thereof. In that case the Examiner may immediately skip to the following section 6.

Applicant holds an issued patent on a method and system for renderings that take place on a server computer or computer cluster under the control of a client computer. This rendering system architecture was developed to allow the efficient use of powerful clusters of computers to perform relatively fast highly computing intensive high-resolution ray tracing of scenes containing many large 3D objects, including transparent objects like glass, and computing-intensive lighting and textures. In the present patent application, Applicant extends his teachings and proposes additional claims that incorporate the use of relatively small 3D stand-in objects on the client computer, to support fast preview-quality client computer-based perspective-view,

rather than plan-view renderings. Such renderings can then be used to aid the user in more precisely specifying the attributes like camera parameters and lighting required for a high-quality or photorealistic server-based rendering. Neither Smith, nor Schneider nor Tehnicon teach anything about the use of relatively small (as compared with the objects used in the final rendering) stand-in objects, as they did not contemplate a preview rendering system that was independent from a final rendering system.

Applicant's invention is not about furniture visualization, it's about empowering users like artists, designers, architects and consumers to manipulate a large and complex visually attractive scene to create very high quality or photorealistic high-resolution ray tracings or other computing intensive renderings relatively fast and inexpensively, by connecting their ordinary personal computer to a powerful remote rendering system that is remotely controlled from their client computer. Applicant's invention is also about insuring the security of the high-resolution objects that only a client-server system can provide.

6.1 Fourth skippable section; the reference art of Smith, Schneider and Technicon

The Examiner may feel that he understands the reference art of any or all of Smith, Schneider and/or Technicon quite well enough, and that he does not need any discussion thereof. In that case the Examiner may immediately skip to the following section 8.2.

In rejecting Applicant's present claims, the Examiner argues that an obvious combination of the teachings of Smith, Schneider and Technicon would lead one to Applicant's claimed invention. Applicant's claims are an extension of a method and system for network rendering, for which Applicant has been issued U.S. patent No.

7,062,722. As discussed more fully below, Smith and Technicon, like the Applicant, envisioned a system that can render furniture configurations, but don't teach a rendering method. Instead, Smith teaches a graphical user interface. Schneider's tutorial discusses the general concepts involved with VRML web browser-based rendering on a client computer, but specific applications like furniture configuration visualization are not discussed.

Smith teaches a graphical user interface for a modular office furniture order system. Once a furniture configuration is established, based on user specified parameters, "the user is able to obtain a realistic display of the configuration and is then able to view that display from arbitrary view points". There is no teaching as to the steps required to produce such a rendering. Instead, Smith teaches about the functionality of the graphical user interface, and leaves the rendering method unspecified. Smith does teach in column 5, lines 29-35 that "in other embodiments the computer system 100 is connectable to a network of computers so that some or all of the its process functions, for example, for complex tasks, can be off loaded to other computers on the network." This clearly indicates that Smith contemplated the possible use of a client-server configuration for a computer system incorporating his graphical user interface, but it in no way teaches anything about the specific delegation of such tasks so as to describe a rendering method and system, as do Applicant's patented claims, nor the extension of same proposed by Applicant in the present application to incorporate the use of stand-in objects. In column 6, lines 1-67, Smith describes a modeling tool (as opposed to a rendering method), and begins a detailed description of his graphical user interface. The Examiner sites this reference as evidence that Smith taught "Deriving in the second computer if not transmitted from the first computer a high-quality 3D background model of the represented and selected 3D background scene", which is one element of Applicant's Claim 20. There is no logical connection between this teaching of Smith and this step in a multi-step rendering methodology claimed by

Applicant. Examiner's other cited connections between Smith's teachings and Applicant's Claim 20 are spurious in the same or similar ways. Regarding Claim 21, the cited reference to Smith column 6 lines 1-25 discusses a modeling tool, not a rendering system. Regarding Claims 22 and 24, Examiner states " . . . Smith in view of Technicon teaches every element of claim 22 (or 24)." For the reasons stated above, this is not the case. The Examiner's finding that applicant's claims could be inferred from the teachings of Smith in view of Schneider and Technicon are also spurious for the same general reasons as stated above.

Schneider wrote an introduction to VRML, the Virtual Reality Modeling Language, and an introduction to 3D graphics, which included a discussion about how a 3D object is "built up" (points that define object edges in 3D space). He goes on to explain that when these points are linked together by lines we get a wireframe rendering of an object. Finally, he explains that objects are either lit or emit light, that shading is the most computer intensive task, and that all surfaces can be represented by a set of flat polygons split up into triangles by the rendering machine.

Technicon offered a software product in 1999 called "Showroom", "a compelling 3D electronic commerce software for office furniture salespeople. This software enabled these individuals to interactively customize, visualize and order office furniture directly over the Internet and at the point of sale." The cited offering literature doesn't discuss the rendering methodology utilized. The Examiner states "Technicon teaches an on-line catalog system that provides 3D photorealistic images to a customer instantaneously as well as placing the images with a 3D room". In fact, Technicon teaches nothing about how such images are rendered, it only teaches that Technicon is offering for sale a computer system that renders such images.

Applicant teaches an extension of a very specific method and system for network-based photorealistic rendering of 3D objects in 3D scenes claimed in Applicant's previously issued patent 7,062,722. In denying Applicant's claim 20 based on "obviousness" in light of Smith, Schneider and Technicon, the Examiner is effectively arguing the invalidity of Applicants issued claims for a very specific, non-obvious method and system for network-based rendering. Yet Smith didn't teach anything about a method or system for rendering. He mentions that his graphical user interface can produce a rendering, but he never explains how this would be done, let alone how it could be done over a network. Instead, Smith teaches about a specific graphical user interface. Schneider teaches an introduction to 3D graphics principals and about a specific modeling language called VRML. Technicon teaches about a specific software product offering, not about a very specific method and system for rendering across a network, wherein certain specific activities are performed on the client computer, and others are performed on the server computer. Furthermore, the subject application extends Applicant's prior claims by teaching two key concepts. The first is a method for integrating client-side preview quality renderings into the previous teachings, and the second is a method for incorporating the use of client-side stand-in models into the previously teachings. Neither Smith, nor Schneider nor Technicon teach either of these concepts, which are clearly not obvious to even someone skilled in the art of computer graphics solely from a review of Smith, Schneider and Technicon.

In making the case that Applicant's claim 20 was taught by Smith, Examiner states "Smith expressly shows the perspective view of office furniture in a 3D format with a particular background scene." Examiner conveniently ignores the preamble phase of Applicant's Claim 20 "Producing or selecting at a first computer upon a digital communications network". As a first step, Applicant teaches producing or selecting a 3D model, or precursors thereof, of a background scene into which an object will be rendered, and that this step is performed on the first of two computers linked by a

network. There is no logical connection between this specific step in a multi-step rendering method fully described by Applicant, and Smith's showing of a perspective view image generated by some unspecified rendering method. The only thing that Smith teaches that is relevant is that a rendered perspective-view image of a specific furniture configuration would be commercially useful. Technicon teaches the same thing. Indeed, Applicant comes to this same conclusion, but his claims are about something different--a specific, non-obvious and unusual method for rendering such an image.

6.2 Detail distinction of Applicant's invention as claimed over the reference art of Smith

The Examiner states at his Office Action page 4, line 4, that "[Smith teaches} transmitting from the first computer... and receiving at another, second computer", referencing Smith column 5, lines 29-35. In fact, at this location, Smith states only that on "a network of computers... some or all processing functions, for example complex tasks, may be off loaded to other computer in the network".

In the face of the totality of the art showing diverse image processing functions at diverse locations, it is hard to glean from this reference that Smith intents the particular partition claimed by Applicant. A more likely off loading of the "complex functions" envisioned by Smith (especially in consideration of the comments re: the prior art at column 3.lines 26-36) is between a meta file 121, a customer user interface 118, and a modeling tool 116 all at a user computer, and a symbol library 123 and a CAD package 124 at another, second, computer (all functions shown in Fig. 3).

This is contrary to Applicant's claimed system where transpires "transmitting from the first computer upon the digital communications network.... [certain specified]

information... receiving at another, second, computer upon the digital communications network the background scene information and object identity and parameters... [and] deriving in the second computer if not transmitted from the first computer (4) a high-quality 3D background model of the represented and selected 3D background scene...." (claim 20)

The reference art of Smith likewise neither teaches nor suggests the [particular partition between manipulation of a low-resolution image (at a client computer), and rendering of a high-resolution image (at a server computer), as is set forth in added claim 42.

Neither the reference art of Technicon, nor of Schneider, does anything to reverse this teaching of Smith, nor to suggest Applicant's claimed invention.

7.1 Fourth skippable section; discussion of the reference art of Korobkin

The Examiner may feel that he understands the reference art of Korobkin well enough, and that he does not need any discussion thereof. In that case the Examiner may immediately skip to the following section 7.2.

Korobkin teaches a computerized method for rendering an image of a 3D virtual object in a camera-derived 2D scene. This is accomplished by first obtaining information about the camera location and lens, and then mapping the 2D digital scene image onto a 3D model, to allow a conventional 3D rendering of the object in the scene, for the purpose of providing in-situ visualization in virtual reality. Such renderings, of course, can only be in proper perspective if performed using the camera parameters of the 2D background image camera.

Korobkin's method relies on known camera location and focal length data for the camera used to take the image of the background scene, or photogrametric methods to extract the same from several 2D images of the background scene with identified matched-points, taken from different perspectives, along with the distance between a pair of points in the background scene. This photogrametric method and system has been commercialized by RealViz in the form of a personal computer program called ImageModeler. The client-server roles, if any, are incidental to the described method and system. In summary, Korobkin teaches a method for compositing 3D objects into 2D scenes, with the inherent limitations of a fixed camera position and lens and existing background scene lighting.

Carlin claims in his 2006 patent a client-server system for rendering 3D objects in 3D scenes. Certain steps are performed on the client computer, and other steps are performed on the server computer. These steps are very specific, non-obvious, and involve client-side 2D (plan-view) construction of a 3D scene by using object-based rules for 2D to 3D translation.

In the present C-I-P application things are slightly changed, Carlin extends his claims to include the use of client-side stand-in 3D models, and replacing client-side 2D (plan-view) scene construction with a 3D scene editor/previewer on the client computer.

7.2 Detail distinction of Applicant's claims over the reference art of Korobkin

Korobkin describes at column 38. Line 27, et seq, what he proposes to implement his e-commerce merchandizing system "on a client-server configuration over a network 10". In this mode product shoppers are associated with client nodes CN100, and product purveyors are associated with server nodes SN200". The product shoppers, or "SHOP' nodes run "[image] processing engine 11 programs" distributed from purveyor, or "SELL" nodes along with "2D and 3D digital representations and ancillary information of the product...." "Such media include all combinations of 2 [product images, 3D product images, from and function parametric data..." "Intelligent composition packages IIP and 2D are digital images or image compositions packaged and served that enable a full range of 2D and 3D visualization and simulation at **both SELL and SHOP nodes**" (column 38, line 1, et seq.)

This capability to render final, 3D, images at both a client and a server teaches against Carlin, where transpires "transmitting from the first computer upon the digital communications network.... [certain specified] information... receiving at another, second, computer upon the digital communications network the background scene

information and object identity and parameters... [and] deriving in the second computer if not transmitted from the first computer (4) a high-quality 3D background model of the represented and selected 3D background scene...." (claim 20)

The reference art of Korobkin likewise neither teaches nor suggests the [particular partition between manipulation of a low-resolution image (at a client computer), and rendering of a high-resolution image (at a server computer), as is set forth in added claim 42.

8. Added claim 42

Added claim 42 is directed to the use of applicant's invention in a proprietary client-server system as a repository for proprietary 3D models. Applicant's invention permits manufacturers, like Kohler, to make high-quality 3D models of their products available for the architectural and interior design community to use in renderings, without letting go of the models themselves. Users have access only to low-quality stand-in proxy models, but can still produce renderings of the highest quality using the protected 3D models on the server. In this way, users could design bathrooms featuring Kohler faucets and sinks, and render them with photorealism on our server, without getting their hands on the high quality models themselves. This would prevent some reverse engineering. Very few manufacturers make available high quality 3D models of their products, for fear that the designs will be stolen, and bootleg merchandise will be produced.

The subject application contains teachings supportive of this use in several areas. For example, paragraph 0063 - 0065 states "Services of the system of the present invention may be offered . . . (ii) to bona fide design professionals (whether for fee for use, or merely to promote sale of the goods), and/or (iii) for fee to those parties who may wish to

use the models, and the digital image rendering services, but who will not be furnishing further revenues, such as by purchasing selected depicted items." Paragraph 0057 discusses the security advantages of parking high-resolution models where they can be used, but not stolen. "The server-based rendering of the present invention permits the use of very large (high-resolution) models and textures, and allows such models to remain secure on the server. It would be very time-consuming and expensive (in a bandwidth sense) to download 50 MB of models for rendering on the client. Furthermore such downloads would compromise the security of the models, as they could then be stolen. Given that relatively inexpensive high-performance computers are now readily available and in use by business, it is the security and data transmission speed issues that are the real competitive advantage of server-based rendering in business applications. . . . The system of the present invention that combines client rendering of small stand-in models and textures with server-based rendering of proprietary high-resolution models and textures is the best of both worlds."

In light of this explanation, the Examiner will thus hopefully find that added claim 42 is but an adjunct to the method according to claim 20. That is, the method now being claimed to exercised in added claim 42 is to the purpose that a manufacturer may contract with a remote image rendering service to make their high resolution 3D objects available to designers for use in high quality renderings by (1) loading them on the server system, and (2) making available low resolution stand-in proxy objects for use in preview renderings on the client rendering system that is linked to the subject server system.

9. Concluding Remarks

Applicant's undersigned attorney is at the Examiner's disposal should either wish to discuss any matter which might expedite prosecution of this case. Please continue to note the below e-mail address, and please note the telephone number, of Applicant's undersigned representative.

Sincerely yours,

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[ ] Filed Under 37 CFR §1.34(a)

CERTIFICATION UNDER 37 CFR 1.08

I hereby certify that this AMENDMENT and the documents referred to as attached therein are being deposited with the United States Postal Service in an envelope addressed to: Mail Stop Amendment Examining Group 2179, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date written below.

July 28, 2008	William C. Fuess	William C. Fuess
Date	Typed Name of Person Mailing Correspondence	Signature of Person Mailing Correspondence